

REMARKS

I. Status Summary

Claims 5-7, 9-11, 14, 16, 26-28, 42, and 47-57 are pending in the subject application and have been examined by the U.S. Patent and Trademark Office (hereinafter "the Patent Office").

Claims 42, 47, and 54 have been objected to on formal bases.

Claims 5-7, 9-11, 14, 16, 26-28, 42, 47, and 54-57 have been rejected under the written description and enablement provisions of 35 U.S.C. § 112, first paragraph.

Claims 48, 49, and 51-53 have been further rejected under 35 U.S.C. § 112, first paragraph, upon the contention that the claims include new matter.

Claims 5-7, 9-11, 16, 26-28, 42, and 47 have been rejected under 35 U.S.C. § 102(a) upon the contention that the claims are anticipated by Beste *et al.* (1999) 96 *Proc Natl Acad Sci U S A* 1898-1903 (hereinafter "Beste").

Claims 5-7, 9-11, 14, 16, 26-28, 42, 47, and 54-57 have been canceled without prejudice. Applicants hereby reserve the right to file one or more continuation applications with claims directed to the subject matter of one or more of claims 5-7, 9-11, 14, 16, 26-28, 42, 47, and 54-57.

New claims 58-68 have been added. Support for the new claims can be found throughout the specification as filed, including particularly in the claims as filed. Additional support can be found on page 9, lines 7-11; page 17, lines 16-17 (as amended on January 10, 2006); page 2, line 33 through page 3, line 17 (libraries); and page 17, lines 11-13 (mutagenesis of the N-terminal beta-sheet). Thus, no new matter has been added by the inclusion of the new claims.

Reconsideration of the subject U.S. patent application based on the amendments and remarks presented herein is respectfully requested.

II. Response to the Claim Objections

Claims 42, 47, and 54 have been objected to upon the contention that the claims contain typographical errors. These claims have been canceled without prejudice and also without acquiescence to the contentions of the Patent Office. Thus, the instant objections are believed to have been rendered moot.

III. Response to the Written Description Rejection

Claims 5-7, 9-11, 14, 16, 26-28, 42, 47, and 54-57 have been rejected under 35 U.S.C. 112, first paragraph, upon the contention that they contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

These claims have been canceled herein without prejudice and also without acquiescence to the contentions of the Patent Office. Thus, the instant rejection is believed to have been rendered moot.

IV. Response to the Enablement Rejection

Claims 5-7, 9-11, 14, 16, 26-28, 42, 47, and 54-57 have been rejected under 35 U.S.C. 112, first paragraph, upon the contention that while the specification enables the mutants of bovine gamma-crystallin of SEQ ID NO. 22 obtained by mutations at positions identified in claim 12, it does not reasonably provide enablement for mutants of crystallins other than bovine γ -crystallin, and also does not enable other proteins with mutations at beta sheet structure as claimed.

These claims have been canceled without prejudice and also without acquiescence to the contentions of the Patent Office. Thus, the instant objections are believed to have been rendered moot.

V. Response to the New Matter Rejection

Claims 48, 49, and 51-53 have been rejected under 35 U.S.C. § 112, first paragraph, upon the contention that the claims include new matter. According to the Patent Office, the numbering of the amino acids is different in the claims than in the specification.

Applicants respectfully disagree. Applicants respectfully direct the Patent Office's attention to Amendment B filed January 10, 2006. In this amendment (see page 5), the specification was amended as follows:

Based on the X-ray structure of gamma-II-crystalline (Wistow et al., 1983), the N-terminal domain of gamma-II-crystalline (GENBANK® Accession[[.]] No. M16894) was selected for mutagenesis. Eight amino acids in all,

which form a continuous surface segment, were identified there. The selected amino acids are part of a beta-sheet and should not contribute substantially to preserving the structure. They are amino acid positions which are accessible to the solvent and thus also to possible binding partners. The eight amino acids Lys [[2]]3, Thr [[4]]5, Tyr [[6]]7, Cys [[15]]16, Glu [[17]]18, Ser [[19]]20, Arg [[36]]37, and Asp [[38]]39 of SEQ ID NO: 22 comprise an area of approx. 6.1% of the total surface area of the protein.

The amendments reproduced above were made in order to harmonize the numbering of the amino acid positions in SEQ ID NO: 22 with those found in GENBANK® Accession No. M16894, and thus found support in this database entry, which was cited in the specification as filed, as well as in the Sequence Listing.

As a result of the amendment to the specification that accompanied Amendment B, applicants respectfully submit that the amino acid residue numbering in the claims is consistent with the amino acid residue numbering in the specification, and further respectfully submit that one of ordinary skill in the art would have easily understood the nature of the amendments presented therein. Accordingly, applicants respectfully request that the instant new matter rejection of claims 48, 49, and 51-53 be withdrawn at this time.

Applicants further respectfully submit that since the instant rejection is the only rejection that was applied to claims 48, 49, and 51-53, these claims are now in condition for allowance. Applicants thus respectfully solicit a Notice of Allowance to that effect.

VI. Response to the Rejection under 35 U.S.C. § 102(a)

Claims 5-7, 9-11, 16, 26-28, 42, and 47 have been rejected under 35 U.S.C. § 102(a) upon the contention that the claims are anticipated by Beste *et al.* (1999) 96 *Proc Natl Acad Sci U S A* 1898-1903 (hereinafter "Beste").

These claims have been canceled without prejudice and also without acquiescence to the contentions of the Patent Office. Thus, the instant objections are believed to have been rendered moot.

VII. Discussion of the New Claims

New claims 58-68 have been added. Support for the new claims can be found throughout the specification as filed, including particularly in the claims as filed. Additional support can be found on page 9, lines 7-11; page 17, lines 16-17 (as amended on January 10, 2006); page 2, line 33 through page 3, line 17 (libraries); and page 17, lines 11-13 (mutagenesis of the N-terminal beta-sheet). Thus, no new matter has been added by the inclusion of the new claims.

Applicants respectfully submit that new claims 58-68 recite *inter alia* mutagenized vertebrate gamma crystallin polypeptides (e.g., vertebrate gamma-II-crystallin polypeptides) in which one or more amino acids on a surface of the gamma crystallin polypeptides are mutagenized relative to a reference gamma crystallin polypeptide. As such, applicants respectfully submit that it is believed that new claims 58-63 fully comply with the requirements of 35 U.S.C. § 112, first paragraph.

Additionally, applicants respectfully submit that Beste would not support a rejection of new claims 58-68. For example, applicants respectfully submit that each of new claims 58-68 recites *inter alia* that the mutagenized gamma crystallin polypeptides. Applicants respectfully submit that Beste only discloses mutagenized lipocalin polypeptides, and thus would not be interpreted by one of ordinary skill in the art to disclose mutagenized gamma crystallin polypeptides.

Accordingly, applicants respectfully submit that new claims 58-68 are believed to be in condition for allowance, and respectfully solicit a Notice of Allowance to that effect.

CONCLUSIONS

In light of the above amendments and remarks, it is respectfully submitted that claims 48, 59, 51-53, and 58-68 of the present U.S. patent application are now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters.

DEPOSIT ACCOUNT

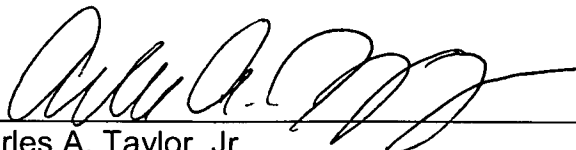
The Commissioner is hereby authorized to charge any underpayment and/or credit any overpayment of fees associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

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